TRANSITION networks

User's Guide

CSEFE10xx-10x

Slide-in-Module Media Converter

- ***Switchable Ethernet and Fast Ethernet***
- ***10 Mb/s Copper to Fiber***
- ***100 Mb/s Copper to Fiber***

Transition Networks CSEFE10xx-10x series Ethernet / Fast Ethernet media converter is designed to be installed in a Transition Networks *PointSystem™* chassis and is a 10Mbps or 100Mbps switch-selectable media converter.

Both the copper and fiber links operate at the same speed setting via a hard set with a dip switch, so the media converter operates at either 10 Mb/s copper to fiber or 100 Mb/s copper to fiber.

Part Number	**Port One -** *Twisted-Pair Copper*	**Port Two -** *Fiber Optic*
CSEFE1012-100	*RJ-45, 100 m (328 ft)**	*ST, 1310 nm single mode duplex fiber, 20 km (12.4 miles)**
CSEFE1014-100	*RJ-45, 100 m (328 ft)**	*SC, 1310 nm single mode duplex fiber, 20 km (12.4 miles)**
CSEFE1015-100	*RJ-45, 100 m (328 ft)**	*SC, 1310 nm single mode duplex fiber, 40 km (24.8 miles)**
CSEFE1022-100	*RJ-45, 100 m (328 ft)**	*ST, 1310 nm single mode duplex fiber, 40 km (24.8 miles)**
CSEFE1029-100	*RJ-45, 100 m (328 ft)**	*SC, 1310 mn (TX)/1550 nm (RX) single fiber, 20 km (12.4 miles)**
CSEFE1029-101	*RJ-45, 100 m (328 ft)**	*SC, 1550 mn (TX)/1310 nm (RX) single fiber, 20 km (12.4 miles)**

The CSEFE10xx-10x media converter is designed to be installed in pairs, where one is the **local** media converter and the other is the **remote**. For example, a local CSEFE1011-100 converter is connected, via fiber, to a remote CSEFE1011-100 converter.

For a **single fiber network**, a local CSEFE1029**-100** is connected, via fiber, to a remote CSEFE1029**-101** converter.

* Typical maximum cable distance. Actual distance is dependent upon the physical characteristics of the network. (TX) = transmit, (RX) = receive

Installation

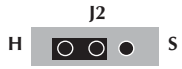
CAUTION: Wear a grounding device and observe electrostatic discharge precautions when setting the jumper or when installing the media converter. **Failure to observe this caution could result in damage to, and subsequent failure of, the media converter.**

Set the Hardware / Software Jumper

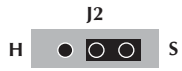
- The hardware/software jumper (J2) is located on the circuit board.
- Use small needle-nose pliers to move the jumper to the desired position.

Hardware The media converter mode is determined by the switch settings (see below).

Software The media converter mode is determined by the most-recently saved, on-board microprocessor settings.



hardware mode



software mode

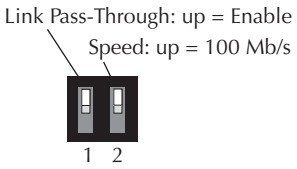
The **Link Pass-Through** and **speed** switches are located on the side of the media converter. Use a small screwdriver to set the recessed switches.

Set Link Pass-Through (switch 1)

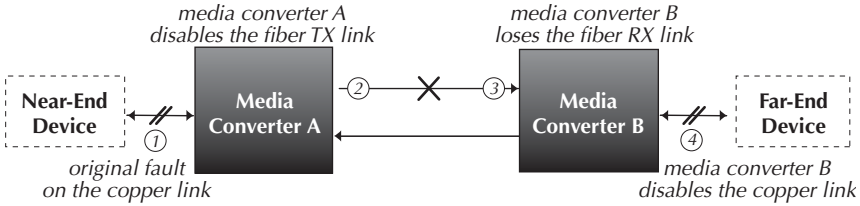
Switch 1 sets the Link Pass-Through feature:

up = Enable Link Pass-Through.

down = Disable Link Pass-Through.



Link Pass-Through is a troubleshooting feature that allows the media converter to monitor both the fiber and copper RX (receive) ports for loss of signal. In the event of a loss of an RX signal on one media port, the media converter will automatically disable the TX (transmit) signal of the other media port, thus, "passing through" the link loss. This feature prevents the loss of valuable data unknowingly transmitted over an invalid link.



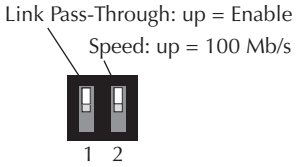
Installation -- Continued

Set the Speed (switch 2)

Switch 2 sets the speed for both the twisted-pair copper and fiber links:

up = copper and fiber links are at 100Mb/s.

down = copper and fiber links are at 10 Mb/s.



NOTE: The CSEFE10xx-10x media converters are fully compliant with 10Base-T, 100Base-TX, and 100Base-FX standards and, therefore, can be connected to any compliant 10Base-T, 100Base-TX, and 100Base-FX devices.

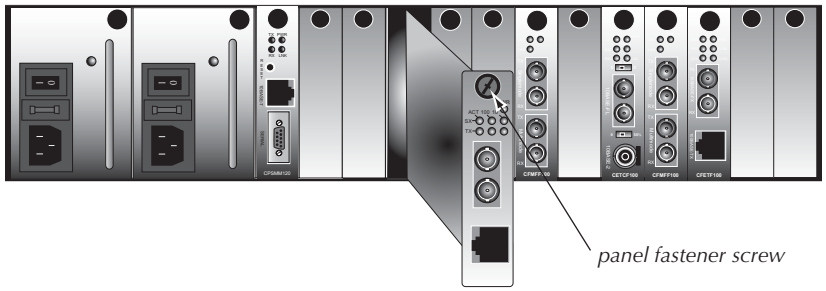
The CSEFE10xx-10x media converters are NOT 10Base-FL compliant and, therefore, must be connected to another CSEFE10xx-10x media converter in a 10Mb/s network.

Install the Slide-In-Module

CAUTION: Slots in the *PointSystem*™ chassis without a slide-in-module installed MUST have a protective plate covering the empty slot for Class A and/or Class B compliance.

To install the CSEFE10xx-10x media converter slide-in-module:

1. Locate an empty installation slot on the *PointSystem*™ chassis.
2. Carefully slide the slide-in-module into the installation slot, aligning the module with the installation guides.
3. Ensure that the module is firmly seated against the back of the chassis.
4. Push in and rotate the panel fastener screw (attached to the slide-in-module) to secure the module to the chassis front.



Power the Media Converter

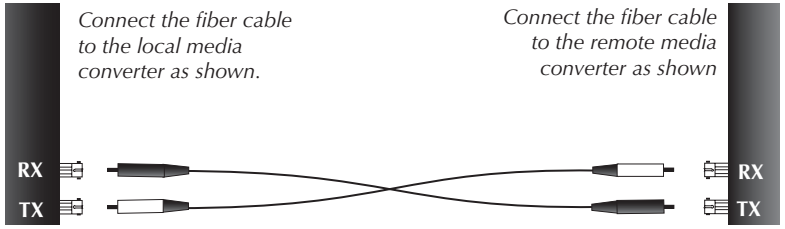
The CSEFE10xx-10x slide-in-module is powered through the Transition Networks *PointSystem*™ chassis.

Installation -- Continued

Install the Fiber Cable

The CSEFE10xx-10x is designed to be installed in pairs over the fiber link, where one is the local media converter and the other is the remote.

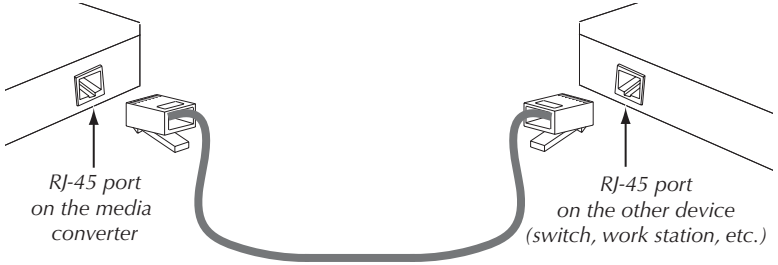
1. Locate or build fiber-optic cable with male, two-stranded TX to RX connectors installed at both ends.
2. Connect the fiber cables to the local CSEFE10xx-10x media converter as described:
   - Connect the male **TX** cable connector the female **TX** port.
   - Connect the male **RX** cable connector to the female **RX** port.
3. Connect the fiber cables to the remote CSEFE10xx-10x media converter as described:
   - Connect the male **TX** cable connector the female **RX** port.
   - Connect the male **RX** cable connector to the female **TX** port.



Install the Copper Cable

NOTE: The MDI (straight-through) or MDI-X (crossover) cable connection is configured automatically, according to the network conditions.

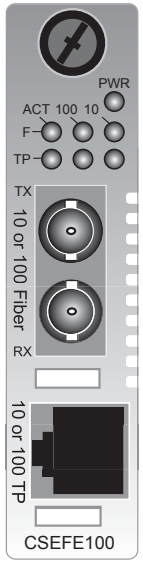
1. Locate or build 10/100Base-TX copper cables with male, RJ-45 connectors installed at both ends.
2. Connect the RJ-45 connector at one end of the cable to the RJ-45 port on the CSEFE10xx-10x media converter.
3. Connect the RJ-45 connector at the other end of the cable to the RJ-45 port on the other device (switch, workstation, etc.).



Operation

Status LEDs

Use the status LEDs to monitor the CSEFE10xx-10x media converter operation in the network.



PWR	*Power*	**On** = Connection to the external AC or DC power.
F-ACT	*Fiber Activity*	**Blinking** = Data reception on the fiber link.
F-100	*Fiber Speed*	**On** = Fiber link at 100 Mb/s.
F-10	*Fiber Speed*	**On** = Fiber link at 10 Mb/s.
TP-ACT	*Copper Activity*	**Blinking** = Data reception on the twisted-pair copper link.
TP-100	*Copper Speed*	**On** = Copper link at 100 Mb/s.
TP-10	*Copper Speed*	**On** = Copper link at 10 Mb/s.

AutoCross™

The AutoCross feature allows either straight-through (MDI) or crossover (MDI-X) cables to be used when connecting to devices, such as hubs, transceivers, or network interface cards (NICs). AutoCross determines the characteristics of the cable connection and automatically configures the unit to link up, regardless of the cable configuration.

NOTE: The CSEFE10xx-10x series media converter does NOT support rate conversion between 10Mb/s and 100Mb/s network devices.

Operation -- Continued

SNMP

Use SNMP at an attached terminal or at a remote location to monitor the media converter by monitoring:

- Media converter power
- Copper link status
- Fiber link status
- Copper receive status
- Fiber receive status
- Link Pass-Through status
- Media converter speed

Also, use SNMP to enter network commands that:

- Enable/disable Link Pass-Through
- Set the speed to 100 Mb/s or 10 Mb/s
- Power down the media converter

See the on-line documentation that comes with Transition Networks FocalPoint™ software for applicable commands and usage.

Cable Specifications

Copper Cable

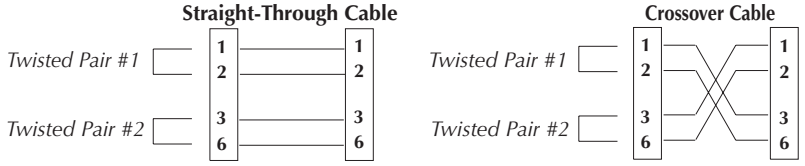
Category 3: (Minimum requirement for 10 Mb/s operation)

Gauge	24 to 22 AWG
Attenuation	11.5 dB/100m @ 5-10 MHz

Category 5: (Minimum requirement for 100 Mb/s operation)

Gauge	24 to 22 AWG
Attenuation	22.0 dB /100m @ 100 MHz

- Straight-through or crossover copper cable may be used.
- Shielded (STP) or unshielded (UTP) twisted-pair cable may be used.
- Pins 1&2 and 3&6 are the two active pairs in an Ethernet network .
- RJ-45 Pin-out: Pin 1 = TD+, Pin 2 = TD-, Pin 3 = RD+, Pin 6 = RD-
- Use only dedicated wire pairs for the active pins: (e.g., blue/white & white/blue, orange/white & white/orange, etc.)
- Do not use flat or silver satin wire.



Cable Specifications

The physical characteristics must meet or exceed IEEE 802.3™ specifications.

Fiber Cable

Bit Error Rate:	$<10^{-9}$
Single mode:	9 µm

CSEFE1012-100	1310 nm single mode	
Fiber-optic Transmitter Power:	min: -15.0 dBm	max: -8.0 dBm
Fiber-optic Receiver Sensitivity:	min: -32.0 dBm	max: -5.0 dBm
Link Budget:	17.0 dB	
CSEFE1014-100	1310 nm single mode	
Fiber-optic Transmitter Power:	min: -15.0 dBm	max: -8.0 dBm
Fiber-optic Receiver Sensitivity:	min: -32.0 dBm	max: -5.0 dBm
Link Budget:	17.0 dB	
CSEFE1015-100	1310 nm single mode	
Fiber Optic Transmitter Power:	min: -8.0 dBm	max: -2.0 dBm
Fiber Optic Receiver Sensitivity:	min: -34.0 dBm	max: -5.0 dBm
Link Budget:	26.0 dB	
CSEFE1022-100	1310 nm single mode	
Fiber Optic Transmitter Power:	min: -8.0 dBm	max: -2.0 dBm
Fiber Optic Receiver Sensitivity:	min: -34.0 dBm	max: -5.0 dBm
Link Budget:	26.0 dB	
CSEFE1029-100	1310 nm (TX)/1550 nm (RX) simplex	
Fiber-optic Transmitter Power:	min: -14.0 dBm	max: -8.0 dBm
Fiber-optic Receiver Sensitivity:	min: -33.0 dBm	max: -3.0 dBm
Link Budget:	19.0 dB	
CSEFE1029-101	1550 nm (TX)/1310 nm (RX) simplex	
Fiber-optic Transmitter Power:	min: -14.0 dBm	max: -8.0 dBm
Fiber-optic Receiver Sensitivity:	min: -33.0 dBm	max: -3.0 dBm
Link Budget:	19.0 dB	

The fiber optic transmitters on this device meet Class I Laser safety requirements per IEC-825/CDRH standards and comply with 21 CFR1040.10 and 21CFR1040.11.

Technical Specifications

For use with Transition Networks Model CSEFE10xx-10x or equivalent.

Standards:	IEEE 802.3™, 10Base-T, 100Base-TX, 100Base-FX
Data Rate:	10 Mb/s, 100 Mb/s
Dimensions:	3.4" x 0.87" x 5" (86 mm x 22 mm x 182 mm)
Weight:	3 oz (91 g) (approximate)
Power Consumption:	3.6 watts
Environment:	Tmra*: 0° to 50°C (32° to 122°F) Storage Temperature: -20° to 85°C (-4° to 185°F) Humidity: 5 to 95%, non condensing Altitude: 0 to 10,000 feet
Warranty:	Lifetime

*Manufacturer's rated ambient temperature: Tmra range for this slide-in-module depends on the physical characteristics and the installation configuration of the Transition Networks PointSystem™ chassis in which this slide-in-module will be installed.

NOTE: The information in this user's guide is subject to change. For the most up-to-date information on the CSEFE10xx-10x media converter, view the user's guide on-line at: www.transition.com.

The **stand alone version** of the media converter is the **SSEFE10xx-10x** model. For more information, see the SSEFE10xx-10x user's guide on-line at: www.transition.com.

Product is certified by the manufacturer to comply with DHHS Rule 21/CFR, Subchapter J applicable at the date of manufacture.

CAUTION: Visible and invisible laser radiation when open. Do not stare into beam or view directly with optical instruments.

CAUTION: Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Troubleshooting

1. Is the PWR LED on the media converter illuminated?

NO

- Is the media converter inserted properly into the chassis?
- Is the power cord properly installed in the chassis and in the grounded AC outlet?
- Does the grounded AC outlet provide power?
- Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

YES

- Go to step 2.

2. Is the F-ACT LED illuminated?

NO

- Check the fiber cables for proper connection.
- Verify that the TX and RX cables on the media converter are connected to the RX and TX ports, respectively, on the other media converter.
- Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

YES

- Go to step 3.

3. Is the F-ACT LED blinking?

NO

- If there is no activity on the fiber port, go to step 4.
- If there is activity on the fiber port, disconnect and reconnect the fiber cable to restart the initialization process.
- Restart the workstation to restart the initialization process.
- Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

YES

- Go to step 4.

4. Are the F-100 and/or the TP-100 LEDs illuminated?

YES

- The media converter is set to 100Mb/s for both the copper fiber links. If this is not the correct speed, carefully remove the media converter from the chassis and set switch 1 to "down" (speed = 10 Mb/s).
- Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

NO

- Go to step 5.

5. Are the F-10 and/or the TP-10 LEDs illuminated?

YES

- The media converter is set to 10 Mb/s for the copper and fiber links. If this is not the correct speed, carefully remove the media converter from the chassis and set switch 2 to "up" (speed = 100 Mb/s).
- Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

NO

- Go to step 6.

Troubleshooting -- Continued

6. Is the TP-ACT LED illuminated?

NO

- Check the twisted-pair copper cables for proper connection.
- Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

YES

- Go to step 7.

7. Is the TP-ACT LED blinking?

NO

- If there is activity on the copper port, disconnect and reconnect the copper cable to restart the initialization process.
- Restart the workstation to restart the initialization process.
- Contact Tech Support: 1-800-260-1312, Int'l: 00-1-952-941-7600.

Contact Us

Technical Support

Technical support is available 24 hours a day.
US and Canada: **1-800-260-1312**
International: **00-1-952-941-7600**

Transition Now

Chat live via the Web with Transition Networks Technical Support.
Log onto **www.transition.com** and click the **Transition Now** link.

Web-Based Seminars

Transition Networks provides seminars via live web-based training.
Log onto **www.transition.com** and click the **Learning Center** link.

E-Mail

Ask a question anytime by sending an e-mail to our technical support staff.
techsupport@transition.com

Address

Transition Networks
6475 City West Parkway
Minneapolis, MN 55344, USA
telephone: 952-941-7600
toll free: 800-526-9267
fax: 952-941-2322

Declaration of Conformity

Name of Mfg:	**Transition Networks** 6475 City West Parkway, Minneapolis MN 55344 USA
Model:	**CSEFE10xx-10x Series Media Converters**
Part Number(s):	**CSEFE1012-100, CSEFE1014-100, CSEFE1015-100, CSEFE1022-100, CSEFE1029-100, CSEFE1029-101**
Regulation:	**EMC Directive 89/336/EEC**

Purpose: To declare that the ***CSEFE10xx-10x*** to which this declaration refers is in conformity with the following standards.

CISPR 22: 1993; EN55022:1998 Class A ; FCCPart 15 Subpart B; EN 55024:1998; EN 61000-3-2: 1995; EN 61000-3-3:1995; 21 CFR Subpart J

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Stephen Anderson, Vice-President of Engineering

December 6, 2004
Date

Compliance Information

CISPR22/EN55022 Class A + EN55024
CE Mark

FCC Regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

Canadian Regulations

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European Regulations

Warning This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Achtung! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fäll ist der Benutzer für Gegenmaßnahmen verantwortlich.

Attention! Ceci est un produit de Classe A. Dans un environment domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilsateur de prende les measures spécifiques appropriées.

CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentlickes Telekommunikationsnetz in den EG-Mitgliedstaaten verstösst gegen die jeweligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

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